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Trends in the Organization of Scientific and Technical Information Systems in Some European Countries

In the recent years some changes could be observed in the organization of information operations in several countries; these changes chiefly consist in a search for improved forms of organization of scientific and technical information systems.

This process has not yet come to an end. With the development of science and technology, with many phenomena connected therewith, such as for instance a notable increase of the amount of scientific literature, is linked a further steady improvement in the organization of scientific information services and elaboration of new, more and more effective, systems of the information operations.

The aim of this paper is to present and to generalize the existing trends in the organization of scientific and technical information systems of several countries of the Eastern Europe, mainly those existing in Poland, in the German Democratic Republic, ~~in~~ Czechoslovakia, ~~in~~ Hungary and in the Soviet Union.

These generalizations were preceded by an analysis of the organization of documentation and information activity in these countries and were based on published programs and development plans.

Prior to come to the proper subject the term "information system" should be explained.

By scientific and technical information system we understand a method - accepted in a given country - of collecting, processing, retrieving and disseminating data on scientific and technical publications. Within the scope of this notion comes the organiza-

tion of this activity, methods of work, as well as the accepted and used technical appliances. Under the term organization of the system we understand the accepted structure of centers of scientific information as well as their main tasks. The present paper deals precisely with the organizational trends appearing in scientific and technical information systems.

The organization of scientific and technical information services in socialist countries of Europe has essentially been adapted to the organizational forms of science and industry, as well as to the needs of various branches of national economy. This does not mean, however, that organizational forms, the means used, and the methods of work are identical in all these countries. They have many features in common though different organizational solutions are also to be found. This is caused to a great extent by different requirements and different means which are at the disposal of particular countries, as well as by some differences in the structure of administration, economy and science. It should be stated, however, that in the organization of scientific information in these countries more common features than differences can be observed.

To such common features belongs among others the subject of documentation and scientific information in East European countries. Generally speaking one can state that the existing information services process documentation of scientific, technical and economic literature as well as results of research. The main line of documentation and information elaborations constitute exact and natural sciences, technics in the broadest sense of the word, and economics. Such a profile of scientific documentation can be observed for instance in the Soviet Union, in Poland, in the German Democratic Republic, in Hungary and in Czechoslovakia. It does not

mean, of course, that these countries do not process, for instance, documentation on literature on social sciences. Attention is also given to this field but it is not considered a top problem.

Which are the present trends of the activity of scientific and technical information services in these countries?

Formation of a uniform system of scientific and technical information in every country.

This is^a fundamental tendency to be found in the organization of scientific and technical information services. Its main assumption is the creation of a centrally administered network of information centers. Such a network should embrace all the basic fields of science and of national economy, according to uniform methods and forms of activity.

The realization of these assumptions is already far advanced in some of the countries in question. A wide network of scientific and technical information centers has been created, based on the principle of ^{level} ~~multistage~~ of scientific and technical information services.

One can distinguish - starting from the basic, lowest level - documentation and scientific and technical information centers in industrial establishments, in research and scientific institutes, as well as in design and construction bureaus. They can also be found in the organizational systems of information in all the countries dealt with. Although their tasks and duties, or their organizational forms, are not always identical, but no essential differences can be observed. Their tasks consist in^a ~~searching~~^{for} and collectingst information material, and in utilization of such according to the needs of research institutes or industrial establishments of a given branch.

On a hierarchically higher level are - as a rule - branch centers of information. Their task is to collect, to process and

to classify information material on production and technology of a given branch, on its economics and on the organization of production, as well as collection of information data on a given topic for the use of working enterprises and research institutes in a given branch. Such centers can be found in all the countries of ~~the~~ Eastern Europe. They constitute the core of information activity.

In some countries, for instance in the Soviet Union, there ~~are~~ also exist industrial research institutes for information and technical and economic research. Their task is to collect and to classify information on the state of science and technics, economics and organization of the branch, to analyze economic indices and to prepare directives for the organizational units of the branch.

On the next organizational level, i.e. the central one, appear various types of scientific and technical information institutes or centers. These types depend on the range and organizational forms of the economy and administration in particular countries. In Poland, ~~in~~ Czechoslovakia, ~~in~~ Hungary and in the German Democratic Republic these will be the departmental centers of information. In the Soviet Union, according to the regional and economic division of the country there will appear scientific and technical information institutes of various republics as well as central technical information offices of the state-owned farms /sovnarkhozes/. The task which faces these institutions or centers is - first of all - generalization of the achievements of domestic and foreign science and technology, organization and coordination of the work of branch and regional centers, consultative activity and promotion of the development of informational activity within the organizationally defined framework.

Finally, on the highest level of information services are found central institutes for scientific and technical information. As a rule they all are central state organs supervising the whole information services network of the country, carrying on or ^{stimu-}~~spen-~~ ^{lat-}~~soning~~ research in the area of scientific and technical information, keeping central collections of information material and performing several other functions of a coordinating and methodological character, and often rendering services.

Central institutes are subordinated to the highest state authorities, responsible for the development of scientific research and technical progress.

Speaking of the organization of scientific and technical information services in East European countries one must emphasize that in the majority of these countries scientific and technical information centers are linked with special /scientific and technical/ libraries. It concerns - first of all - research institutes and also branch centers. This problem has not been solved in a uniform manner in all these countries, but for instance in Poland information centers are attached to special libraries. This kind of symbiosis is becoming more and more popular also in other countries.

Interconnection between scientific and technical information systems and the organization of science and of the national economy in a country.

This constitutes the next tendency to be observed in information activity of the East European countries. It results from the function and tasks which scientific and technical information has to perform: meeting the present and the future needs of science and technics.

If the organization of science and industry in socialist countries is closely examined a conclusion can be easily reached

that the organizational system of scientific and technical information has been strictly to it adapted. In cases where, this has not yet been introduced, it is provided for in plans or in directives for future activity.

The organizational division of science is in general made according to the following sectors: institutes of the academies of sciences, institutions and schools under the Ministry of Higher Education, and institutes under various ministries. As a rule in every institute or in an academic school operates one center, or a group of centers, of scientific information. On the central level - acting as authorities - are centers coordinating documentation and information activity of the centers or of institutes. There can also be observed a tendency that specialized information centers of scientific institutes act as leading branch centers for particular fields of science.

A similar situation can be found in industry. When industry is divided into industrial federations and into producing enterprises an analogous system of scientific and technical information exists: branch centers or information offices attached to industrial enterprises. In other countries - for example in the Soviet Union - where economy has been subdivided into economic regions /sovnarkhozes/ - information centers for sovnarkhozes and central branch centers exist beside the information offices in industrial enterprises.

Many analogies can also be observed in the division of tasks introduced in industry and science as well as in branch and works' centers of scientific and technical information. On the level of an enterprise or a research institute the main stress is laid exclusively on the realization of concrete tasks facing a given institution. The same is true for information activity. On the level of a branch - centers of scientific information (similarly

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~~to~~ industrial federations) have to fulfill the task of providing information for the whole branch, as well as some functions connected with coordination of information activity within ^{this} ~~one~~ branch.

The whole problem of scientific and technical information in a country is subordinated to the designated central authority, which in the East European countries is represented by a Committee at the Council of Ministers, responsible for the development of science and technology.

Thus in turn can be approached the next trend which is

Central coordination

It is the result of the accepted system of scientific and technical information which introduces division into particular organizational levels and calls for unanimous and consonant management of the informational activity of the whole system.

In every country these functions are performed by the above mentioned special Committee, generally through the intermediary of a central information institute.

This institution has to fulfill the following tasks /group of tasks/: planning information and documentation activity within the area of science, technology and economics; coordinating the activity of particular branch or divisional centers of scientific and technical information; organizing /or providing for/ a uniform, effective documentation and information system; safeguarding the ~~pro~~ proper development of information activity in the country; preparing scientific, technical and methodological principles of information activity; coordinating research and development work in the field of information.

Examination of the existing organization of scientific and technical information permits to draw the conclusion that the system applied in the East European countries is based on the

principle of "coordinated decentralization". It results from the organization and the tasks which are performed by particular links of the system, in consequence of which a distinctive tendency can be observed, namely:

Centralization and specialization within branches

This principle is connected with the realization of the problem of concentrating in one place the documentation for a given branch. This tendency has undoubtedly a great significance for the future. It will prevent the undue dispersion and doubling of information collected^{ing} and at the same time will create physical and economic conditions for the use of technical appliances in information activity, starting from simple mechanical devices and finally ending with electronic equipment for the maintenance and retrieval of information.

The next trend which can be more and more clearly distinguished in the organization of information activity and resulting partly ~~fr~~ from the accepted organizational principles as well as from objective conditions of the development of scientific documentation is

Organization of documentation and information collections

as basic instrument in information work for the needs of science and technology.

It is a well known fact that the whole information work is founded on most complete, well selected and based on appropriate sources - collections of information /information body/. The organization of such collections and their development is one of the basic tasks which face information centers in all the countries. Material retrieved from these collections may be called the "blood" of the whole system of scientific and technical information network. Such collections are organized on, and according to the needs of, every level.

In the above system of the organization of information the tendency can be easily observed toward organizing collections on an all-country level, such as branch or divisional collections - existing at branch centers. The remaining collections in research institutes or in working establishments have, in general, a local character.

The above collections have either the form of files for hand operation, or ~~perforated~~ punched or machine cards for rapid selection or retrieval of information.

The collections may have many applications. But most often they serve for the preparation of current reviews of publications /abstracts/, as well as for present and retrospective retrieval of information to meet concrete demands.

It is assumed that owing to the ever increasing number of information material and improved organization of collections, helped by the introduction of modern technical equipment, the abstract publications will lose their importance with simultaneous increase of the significance of operative search for material, and compilation of subject bibliographic lists, as well as the supply of original material will gain in importance. This is closely connected with the introduction of proper means of communication and is one of the prospective tendencies in the development of information services in East European countries.

In the branch and divisional collections a strong tendency can be observed toward creation of retrieval systems appropriate to various kinds of collections. Thus it is connected with the improvement of retrieval systems by organization of special thesauruses which will facilitate the retrieval of information and the use of electronic devices for this purpose.

Development of information contacts

is one of the existing organizational tendencies in information activity of the whole country. It means the interdependence in the activity of particular links of scientific and technical information and also a full, constant and large-scale exchange of information. Information contacts assume activity in supplying information and this in turn provides for the permanent inflow of the most up-to-date information.

As a matter of fact the principle of information contact should be characterized as a bilateral connection in the accepted organizational system. Coming from above - in a form of direct flow of information material destined for information centers in institutes or in industrial establishments, and in the opposite direction - by supplying information material on own scientific and technical works to central collections. Such are the basic directions of information contacts. Independently of the above distinct tendencies can also be observed toward multilateral information contacts in the form of either spontaneous or planned cooperation in the domain of information among particular scientific and economic units of the country.

Development of international cooperation

Besides the existing tendencies toward creating and developing national systems of scientific information the fact can be observed of an increasing international cooperation in the domain of scientific information, especially among the countries members of the Counsel of Mutual Economic Aid /COMECON/. The form of this cooperation can be defined as a close international cooperation distinctly tending toward creating in future a common system of technical and scientific information in all COMECON countries.

This cooperation at present covers the mutual exchange of scientific information, assistance in publishing information reviews, as well as joint research of a theoretical and practical character in the field of scientific information as well as in terminology and standardization. It should be assumed that at a further stage this cooperation will take the form of a far-reaching specialization in the domain of collecting and retrieval^{ing} of scientific and technical information with consequent joint resolution of highly complex scientific and technical problems facing information services of the countries in question.

